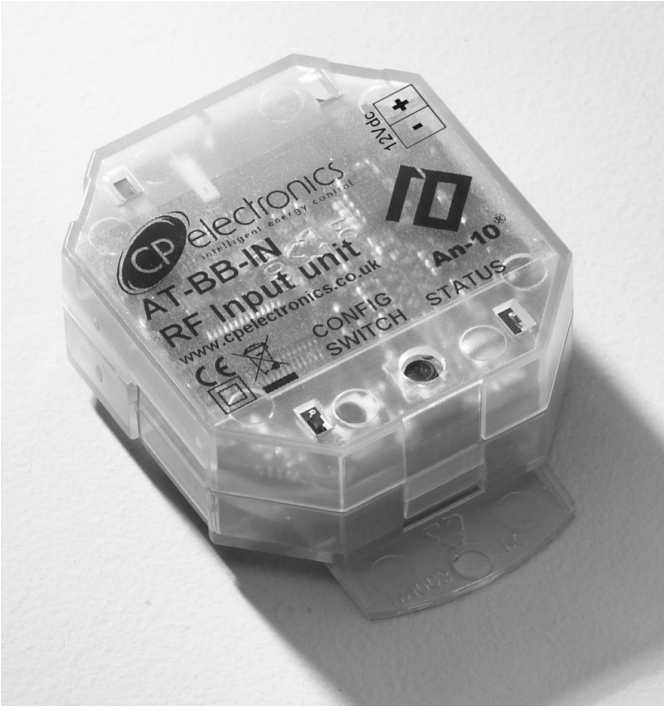
AT-BB-IN

RF input unit

Overview



The AT-BB-IN Input Unit provides a control interface between a lighting system and external devices such as:

- Button/switch plates
- Security systems
- AV equipment

The unit features seven Volt-free switch inputs that can be activated by the contact closure of push-buttons, switches, or relays.

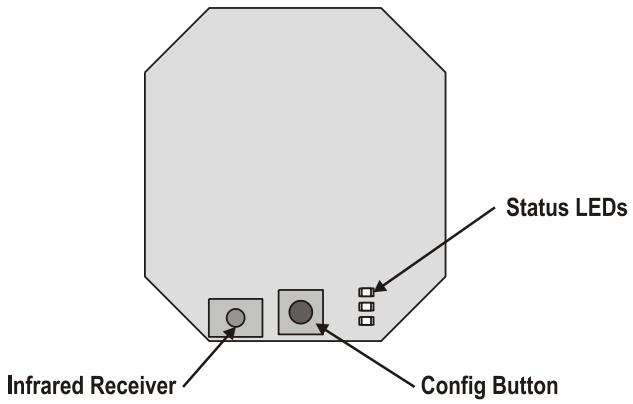
Activating an input causes the unit to transmit a RF control message to other devices, triggering various actions such as recalling a scene, raising/lowering light levels, turning override on/off, starting and stopping sequences, etc.

The integral RF transceiver allows wireless communication with other **An-10**® compatible products. All functionality is fully programmable using an infrared handset (e.g. the UHS4 or UNLCDHS) or PC control software.

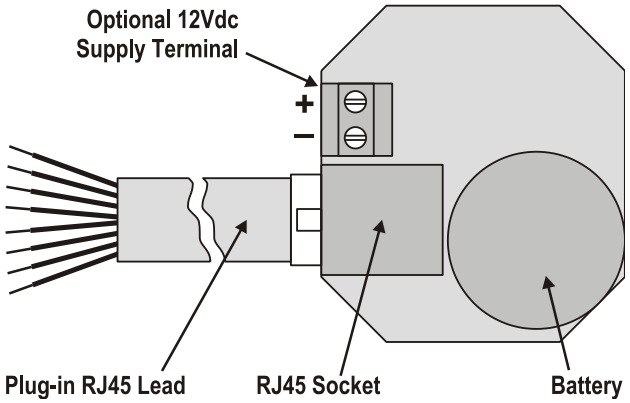
The unit is powered either by the internal battery or via an external 12Vdc supply.

Features

Front features



Back features



Infrared Receiver (IR)
Allows the unit to receive programming commands from an IR Handset (e.g. the UHS4) when IR Receive mode is activated (see Config Button and Status LEDs below).

Config Button
Press this to put the unit into IR Receive mode, enabling it to receive programming commands from an IR Handset.

Status LEDs
These flash **R**ed and/or **G**reen to indicate the following:

IR Receive mode active	R *at 1 second intervals*
Valid setting received	G
Invalid setting received	R R R R R R
Software reset received	G G G G G G
Factory reset received	R G R G R G

Battery (type CR2477)
Provides power to the unit if an external supply is not used.

Optional 12Vdc Supply Terminal
To power the unit from an external supply, connect the supply to this terminal ensuring correct polarity. Refer to Technical Data on page 8 for power supply specification.

Plug-in RJ45 lead and socket
A short 8 core flat cable with plug that is supplied with each unit, used to connect the inputs to external devices.

Installation

The AT-BB-IN Input Unit can either be mounted to any suitable solid surface or concealed inside a backbox.

Surface Mounting Method

Fit the two snap-on mounting brackets on the back side of the unit as shown in opposite.

Use the holes in the mounting brackets to affix the unit to a wall or other solid surface using suitable screw fixings.

Backbox Mounting Method

For **unsecured** fixing, the unit can be simply placed inside a UK or European backbox (without fitting the snap-on mounting brackets). This enables a proprietary switch plate to be connected and screwed to the backbox.

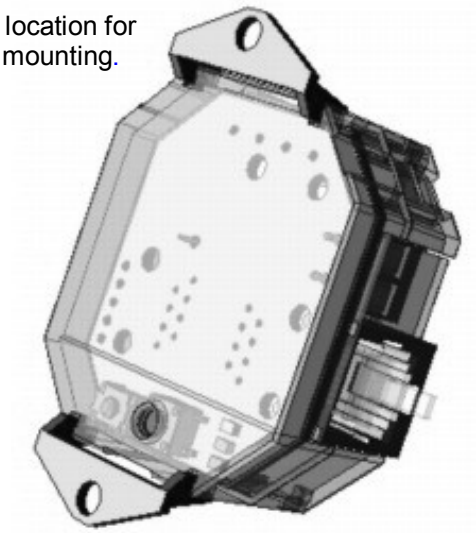
Alternatively, for **secured** fixing, fit the two snap-on mounting brackets on the front side of the unit as shown opposite. The unit can then be secured to the backbox using suitable fixing screws (up to M3.5).

NOTE: *The mounting bracket holes are spaced to suit either a UK (60.3mm pitch) or European (60mm pitch) backbox.*

CAUTION: Do not over tighten the fixing screws as this may cause the brackets to split.

Mounting bracket location for surface mounting.

Mounting bracket location for secured backbox mounting.



Electrical connection

Connections to the AT-BB-IN Input Unit are made via the RJ45 lead supplied. The lead has 8 wires, comprising 7 switch inputs plus a common connection (see below).

Connect the lead wires to suitable push-buttons or switches as required (see wiring examples on page 3).

Each input has two possible states:

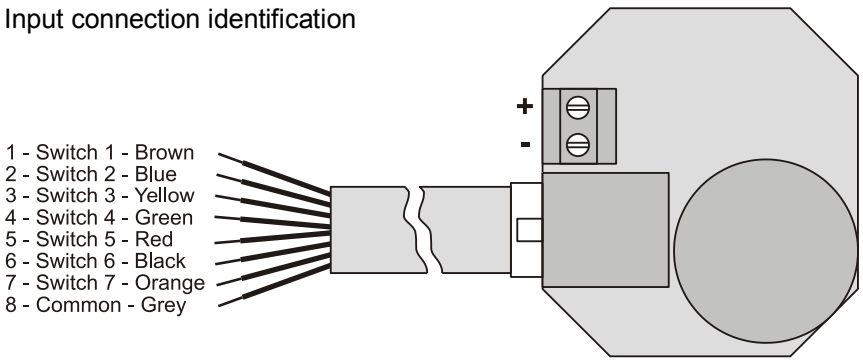
- **Inactive** when the input is unconnected (i.e. open circuit), and
- **Active** when the input is connected to common, (i.e. during button or switch closure).

Each input can be configured (using the Switch Type parameter) for use with either momentary or latching type buttons and switches.

- **Momentary** operation is the default, used for normally-open push-buttons or centre-retractive type switches.
- **Latching** operation is typically used for toggle type switches that remain in either a closed or open state.

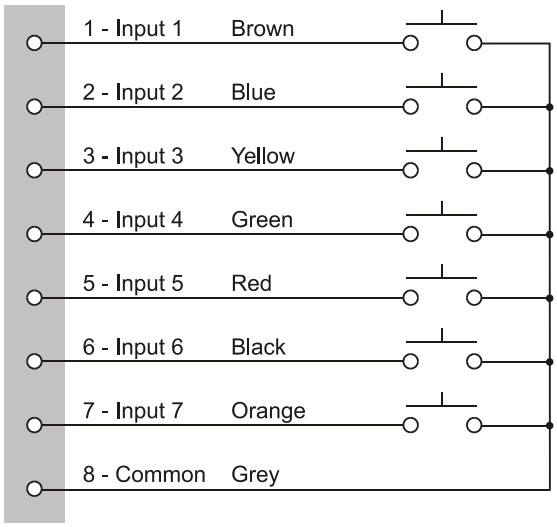
IMPORTANT NOTE: *Latching Mode is not suited to battery operation due to the continuous current drain while a switch is closed. An external 12V power supply must, therefore, be connected if Latching Mode is used.*

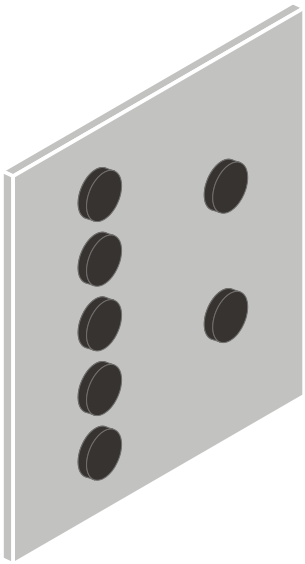
Input connection identification


+
-
1 - Switch 1 - Brown
2 - Switch 2 - Blue
3 - Switch 3 - Yellow
4 - Switch 4 - Green
5 - Switch 5 - Red
6 - Switch 6 - Black
7 - Switch 7 - Orange
8 - Common - Grey

Example 1: Using individual push-buttons

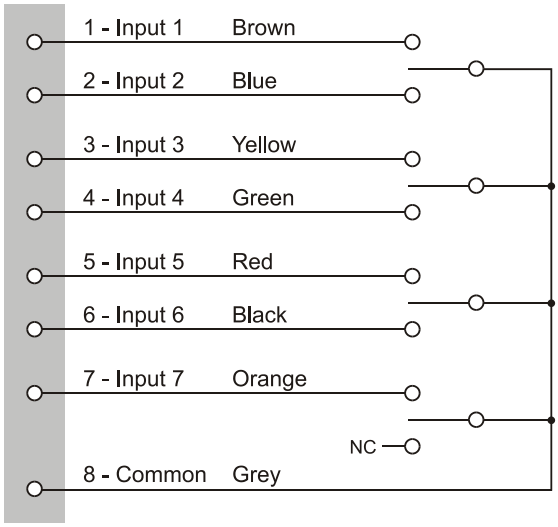
RJ45 Lead

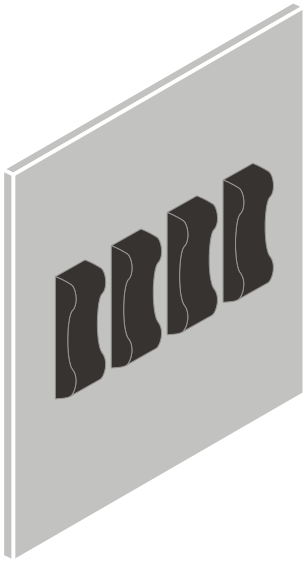




Example 2: Using centre retractive switches

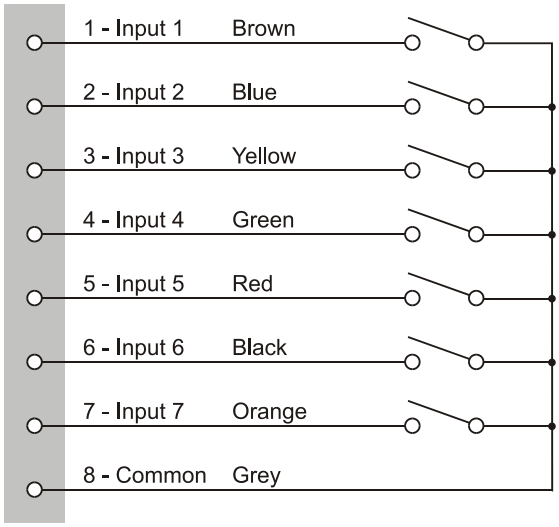
RJ45 Lead

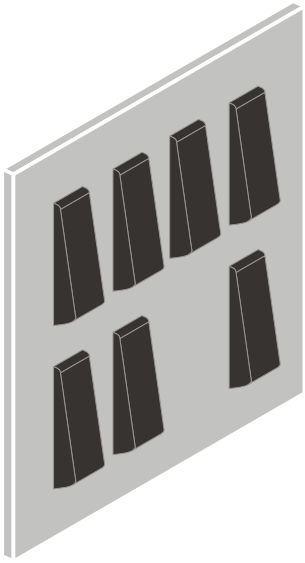




Example 3: Using latching switches (for use with external 12Vdc supply only)

RJ45 Lead





IMPORTANT NOTE:
Latching Mode is not suited to battery operation due to the continuous current drain while a switch is closed. An external 12V power supply must, therefore, be connected if Latching Mode is used.

Basic programming

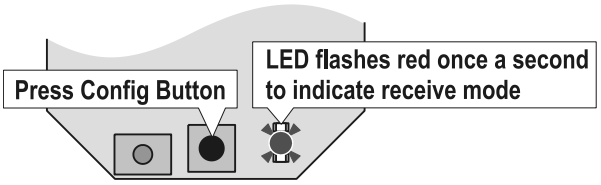
The functionality of the AT-BB-IN Input Unit is controlled by a number of parameters which can be changed or programmed by any of the following devices:

- **UHS4** Infrared Handset
- **UNLCDHS** Infrared Handset (with LCD)

For most basic programming operations the UHS4 handset is recommended and the following procedures are based on using this device.

Step 1: Put Input Unit in receive mode

To enable the AT-BB-IN Input Unit to receive programming commands it must be put into receive mode by pressing the Config Button.



While the unit is in receive mode send the required programming commands to the unit (see Step 2 and 3).

Valid commands will be indicated by a green LED flash. See page 1 for details of other LED responses.

NOTE: *While in receive mode, if no commands are received by the Input Unit within 30 seconds, the unit will automatically revert to its normal standby mode.*

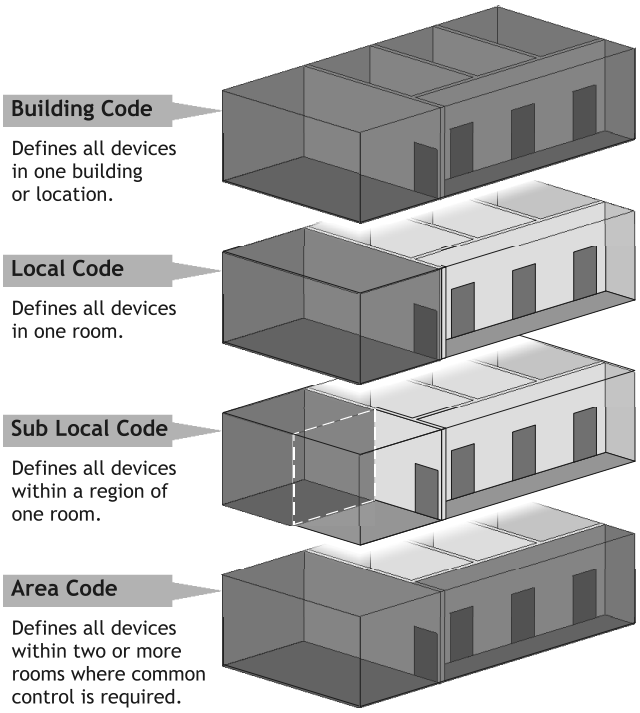
Step 2: Set input channel addresses

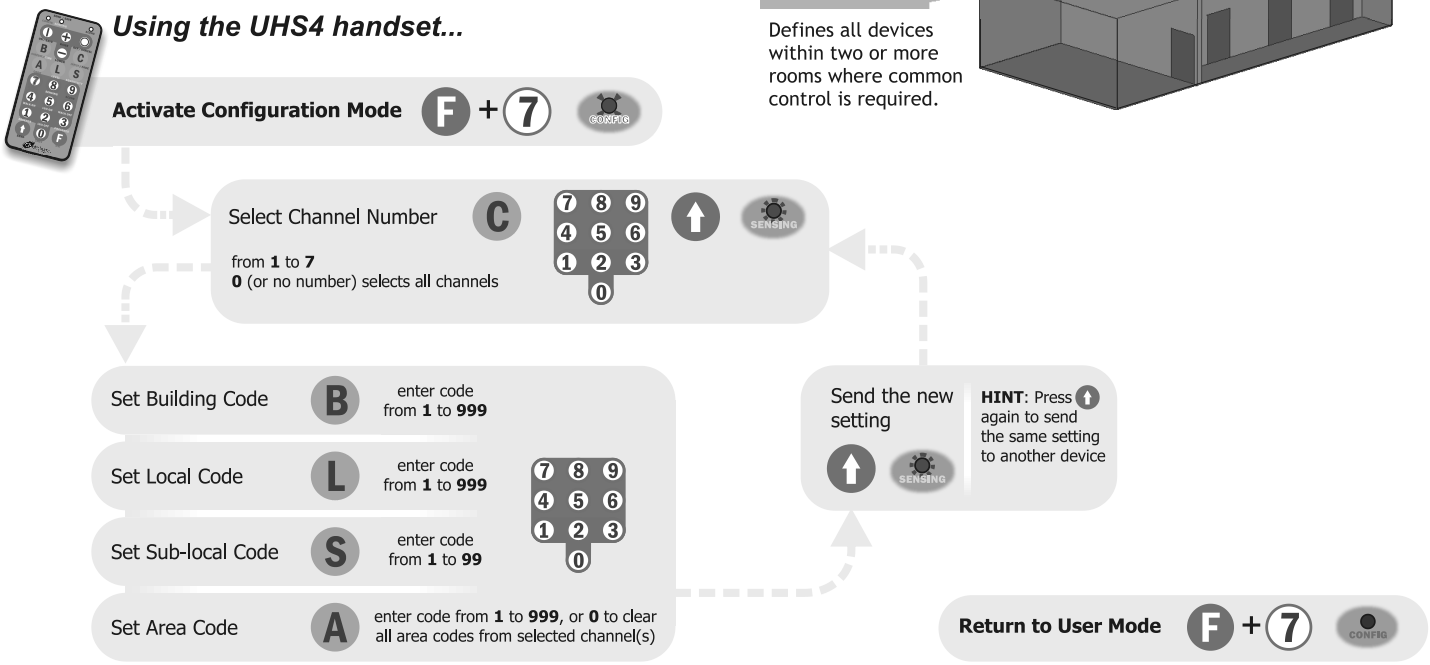
The addressing for an input channel defines the devices that will respond to any control messages sent by the input unit.

For example, activating an input that has its Local Code set to 1, generates a control message that will only be actioned by devices that also have a Local Code of 1.

To program the settings for a specific input channel you must specify the appropriate channel number (i.e.1 to 7) using the programming device.

If no channel number (or channel 0) is specified, all input channels will be set to the same address.


Building Code
Defines all devices in one building or location.
Local Code
Defines all devices in one room.
Sub Local Code
Defines all devices within a region of one room.
Area Code
Defines all devices within two or more rooms where common control is required.

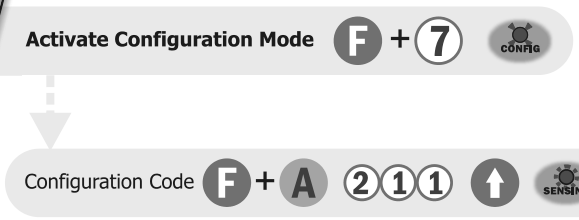


Step 3: Choose a preset configuration

To simplify the programming of commonly used applications, a number of Preset Configurations are available. Preset 0 is implemented by default.

HINT: *Where scene numbers or channel numbers are given in a Preset Configuration, these can be changed (after applying the Preset) by using the Map Scene/ Channel to Button/Input command.*
Refer to the UHS4 user instructions for further assistance.

Using the UHS4 handset...



Circuit mode		Toggle=On/off/raise/lower						
Preset No.		Input 1	Input 2	Input 3	Input 4	Input 5	Input 6	Input 7
0	Function	On / up	Off / down	On / up	Off / down	On / up	Off / down	Em Test
(default)	Circuit	1	1	2	2	3	3	
	Switch type	M	M	M	M	M	M	L
1	Function	On	Off	On	Off	On	Off	Em Test
	Circuit	1	1	2	2	3	3	
	Switch type	M	M	M	M	M	M	L
2	Function	Toggle	Toggle	Toggle	Toggle	Toggle	Toggle	Em Test
	Circuit	1	2	3	4	5	6	
	Switch type	M	M	M	M	M	M	L
3	Function	On/off	On/off	On/off	On/off	On/off	On/off	Em Test
	Circuit	1	2	3	4	5	6	
	Switch type	L	L	L	L	L	L	L

Scene mode		Toggle=On/off/raise/lower						
Preset No.		Input 1	Input 2	Input 3	Input 4	Input 5	Input 6	Input 7
10	Function	On	On	On	On	Up	Down	Off
	Scene	1	2	3	4	Active scene	Active scene	Off
	Switch type	M	M	M	M	M	M	M
11	Function	On / up	Off / down	On / up	Off / down	On / up	Off / down	Off
	Scene	1	1	2	2	3	3	Off
	Switch type	M	M	M	M	M	M	M
12	Function	Toggle	Toggle	Toggle	Toggle	Toggle	Toggle	Off
	Scene	1	2	3	4	5	6	Off
	Switch type	M	M	M	M	M	M	M
13	Function	On/off	On/off	On/off	On/off	On/off	On/off	Off
	Scene	1	2	3	4	5	6	Off
	Switch type	L	L	L	L	L	L	L

Key—switch types

M	Momentary push to make switch
L	Latching switch

Advanced programming

Input Behaviour

Changes in the state of an input (e.g. from inactive to active) generate different events that can then be used to trigger various control functions.

The events generated depend on whether momentary or latching mode is selected (via the Switch Type parameter).

Momentary Mode Operation

In this mode the input is usually inactive (open circuit) and only active (shorted to common) when the button or switch is pressed. This gives rise to four possible input events:

- Single Press
- Double Press
- Long Press – Hold (switch closed for longer than 300ms)
- Long Press – Release (switch opened after Long Press – Hold)

Latching Mode Operation

This mode is typically used for toggle type switches that remain in either a closed or open state for long periods.

Latching mode, therefore, gives rise to two possible events:

- Pressed (switch closed)
- Released (switch open)

Control Functions

Each type of input event can be used to trigger any of the following control functions:

- **Scene Select**
  used to select a specific lighting scene. Depending on the input channel addressing both Local and/or Area scenes can be selected.
- **Scene Raise or Lower**
  used to increase or decrease the overall lighting levels for the currently active scene.
- **Circuit Absolute Level**
  used to set the level of a specific output channel.
- **Circuit Raise or Lower**
  used to increase or decrease the level of a specific output channel.
- **Sequence Control**
  used to start, stop or pause a sequence of scenes.
- **Override Control**
  used to select global override scenes, typically during emergency situations (e.g. fire evacuation).
- **Emergency Test**
  used to test device/systems for correct operation during a mains power failure.

The table below and on page 7 gives a summary of all programmable parameters for the AT-BB-IN Input Unit.

Parameter Name	Default Value	Range / Options	Description	Programming Devices	
				UHS4	UNLCDHS
For Device					
Product ID	*Automatically assigned by the device*	1 to 999	A number used to uniquely identify each device within a range of devices that are set to the same Local Code.	✘	✓
Building Code	1	1 to 999	A number shared by all devices that belong to the same building or system.	✓	✓
For Each Input Channel					
Switch Type	Momentary	Momentary, Latching	Defines whether the input is used in conjunction with momentary or latching type switches. Also defines the range of events available for triggering control functions.	✓*	✓
Local Code	1	1 to 999	A number corresponding to the Local Code of all devices to be controlled by the associated input channel.	✓	✓
Sub Local Code	*Not set*	1 to 99 0 to clear	A number corresponding to the Sub Local Code of all devices to be controlled by the associated input channel.	✓	✓
Area Code(s)	*Not set*	1 to 999	A number corresponding to the Area Code of all devices to be controlled by the associated input channel. Up to 10 Area Codes can be set for each input channel.	✓	✓
For Each Input Event					
Control Function	*As per Preset 0*	None (do nothing) Scene Select Scene Raise Scene Lower Circuit Absolute Value Circuit Raise Circuit Lower Sequence Control Override Control Emergency Test	Defines the type of radio control message sent to other devices.	✓*	✓

* Limited to Preset Configurations

<table>
<tr><th rowspan="2">Parameter Name</th><th rowspan="2">Default Value</th><th rowspan="2">Range / Options</th><th rowspan="2">Description</th><th colspan="2">Programming Devices</th></tr>
<tr><th>UHS4</th><th>UNLCDHS</th></tr>
<tr><td colspan="6">Control Function = Scene Select</td></tr>
<tr><td>Local On Scene
Fade Rate
Timeout</td><td>1
1 second
255</td><td>1 to 20
0 to 255*
0 to 255*</td><td rowspan="6">A Scene Select message comprises of three Local Scenes (On, Step and off) and three Area Scenes (On, Step and off)
When a Scene is selected the input unit recalls the Local and/or Area On Scenes.
If a Local and/or Area Step Scene is specified this will be requested first followed by the Local and/or Area Off Scenes.
NOTE: Area On, Step and Off Scenes are ignored unless one or more Area Codes are set for the corresponding input channel and they match the Area Codes set in any output channel.
The values of the Timeout parameters associated with each scene determine whether or not the scene is actually recalled and whether or not to try and recall the next scene:
Time / delay table
Value | Fade rate time | Timeout delay period
0 | No fade | Ignore the Step scene
1 to 59 | 1 to 59 seconds, in 1 second increments | 1 to 59 seconds, in 1 second increments
60 to 177 | 1 to 59.5 minutes, in 0.5 minute increments | 1 to 59.5 minutes, in 0.5 minute increments
178 to 254 | 1 to 20 hours, in 15 minute increments | 1 to 20 hours, in 15 minute increments
255 | Infinite fade | No timeout recall the specified scene only</td><td rowspan="6">✓*</td><td rowspan="6">✓</td></tr>
<tr><td>Local Step Scene
Fade Rate
Timeout</td><td>1
1 second
255</td><td>1 to 20
0 to 255*
0 to 255*</td></tr>
<tr><td>Local Off Scene</td><td>20</td><td>1 to 20</td></tr>
<tr><td>Area On Scene
Fade Rate
Timeout</td><td>101 to 107
1 second
255</td><td>101 to 220
0 to 255*
0 to 255*</td></tr>
<tr><td>Area Step Scene
Fade Rate
Timeout</td><td>101 to 107
1 second
255</td><td>101 to 220
0 to 255*
0 to 255*</td></tr>
<tr><td>Area Off Scene</td><td>220</td><td>101 to 220</td></tr>
<tr><td colspan="6">Control Function = Scene Raise</td></tr>
<tr><td>Raise Action</td><td>Not set</td><td>Start or none</td><td>Starts (or stops) raising light levels for the currently active Scene. Typically used with a Long Press Hold (to start) and Long Press Release (to stop).</td><td>✓*</td><td>✓</td></tr>
<tr><td colspan="6">Control Function = Scene Lower</td></tr>
<tr><td>Lower Action</td><td>Not set</td><td>Start or none</td><td>Starts (or stops) lowering light levels for the currently active Scene. Typically used with a Long Press Hold (to start) and Long Press Release (to stop).</td><td>✓*</td><td>✓</td></tr>
<tr><td colspan="6">Control Function = Circuit Absolute Level</td></tr>
<tr><td>Circuit Number</td><td>As per Preset 0</td><td>1 to 999</td><td rowspan="3">Sets the target output level for the specified Circuit Number to the value given by Output Level. The time taken for the output to fade to the new level is set by the Fade Rate.</td><td rowspan="3">✘</td><td rowspan="3">✓</td></tr>
<tr><td>Output Level</td><td>100% (on)
0% (off)</td><td>0 to 100%</td></tr>
<tr><td>Fade Rate</td><td>1 second</td><td>1 to 60 seconds</td></tr>
<tr><td colspan="6">Control Function = Circuit Raise</td></tr>
<tr><td>Circuit Number</td><td>As per Preset 0</td><td>1 to 999</td><td rowspan="2">Starts (or stops) raising the output level of the specified Circuit Number. Typically used with a Long Press Hold (to start) and Long Press Release (to stop).</td><td rowspan="2">✓*</td><td rowspan="2">✓</td></tr>
<tr><td>Raise Action</td><td>As per Preset 0</td><td>Start or none</td></tr>
<tr><td colspan="6">Control Function = Circuit Lower</td></tr>
<tr><td>Circuit Number</td><td>As per Preset 0</td><td>1 to 999</td><td rowspan="2">Starts (or stops) lowering the output level of the specified Circuit Number. Typically used with a Long Press Hold (to start) and Long Press Release (to stop).</td><td rowspan="2">✓*</td><td rowspan="2">✓</td></tr>
<tr><td>Lower Action</td><td>As per Preset 0</td><td>Start or none</td></tr>
<tr><td colspan="6">Control Function = Override Control</td></tr>
<tr><td>Override Type</td><td>Not set</td><td>On, off</td><td>Selects whether the Override On or Override Off global scene is to be applied or released.</td><td rowspan="2">✘</td><td rowspan="2">✓</td></tr>
<tr><td>Override Action</td><td>Not set</td><td>Active or released</td><td>Sets the specified Override global scene active or releases it.</td></tr>
<tr><td colspan="6">Control Function = Sequence Control</td></tr>
<tr><td>Sequence Number</td><td>1</td><td>1 to 99</td><td>Selects the Sequence Number to be controlled.</td><td rowspan="2">✘</td><td rowspan="2">✓</td></tr>
<tr><td>Sequence Action</td><td>Not set</td><td>Start, stop or pause</td><td>Selects the action to be applied to the specified Sequence.</td></tr>
<tr><td colspan="6">Control Function = Emergency Test</td></tr>
<tr><td>Test Condition</td><td>Not set</td><td>on or off</td><td>Turns the Emergency Test feature on or off.</td><td rowspan="2">✓*</td><td rowspan="2">✓</td></tr>
<tr><td>On Test Timeout</td><td>Not set</td><td>0 to 255</td><td>Sets the maximum On Test time before the feature is automatically turned off. (See note on Timeout values above).</td></tr>
</table>

* Limited to Preset Configurations

Replacing the Battery

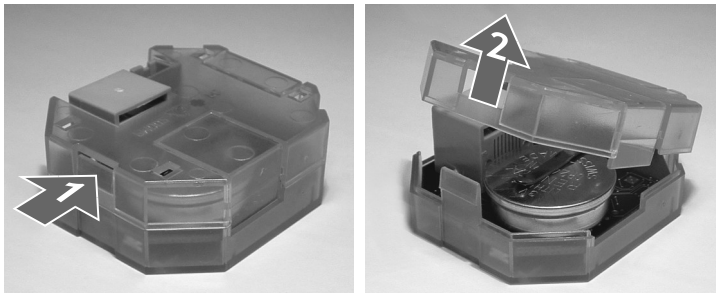
Press-in the large retaining clip sufficiently to allow the two halves of the casing to be separated.

Lift out the PCB module, taking care not to damage the electronic components.

Slide out the battery from its mounting clip and insert a replacement battery (type CR2477 or equivalent), ensuring correct polarity.

Carefully reassemble the unit, ensuring that the three retaining lugs are correctly located before clipping the casing back together.

Accessing the internal battery



Technical data

Weight	0.025kg
Battery	3Vdc lithium battery, type CR2477 (supplied with unit)
Battery Life	Greater than 7 years with typical usage

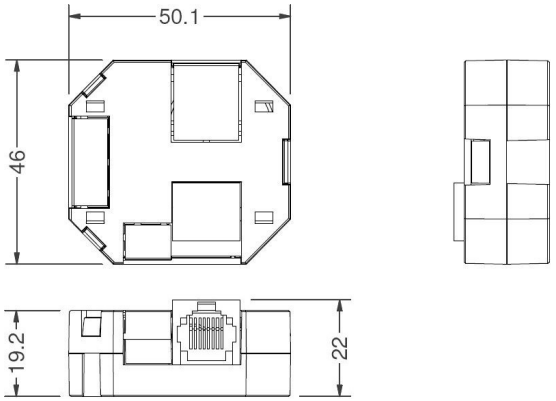
Optional External Supply Requirements:

Supply Voltage	12Vdc regulated
Supply Current	50mA max.
Supply Power	600mW max.
Terminal Capacity	2.5mm^2

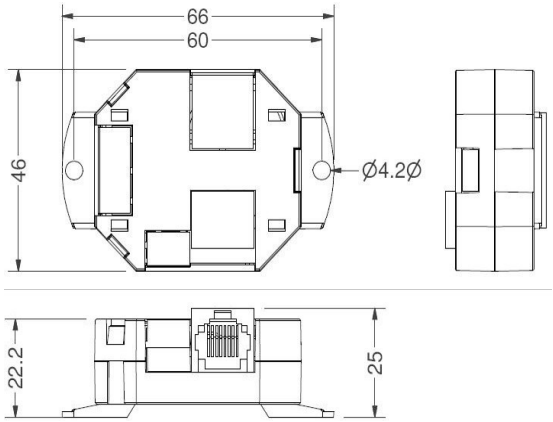
Order code	Region	Radio frequency	Compliance
blank	European Union	868MHz	EN300 220-2 V2.1.2 EN301 489-1 V1.8.1 EN301 489-3 V1.2.1
-A2	Australia & New Zealand	915MHz	AS/NZS 4268:2008

Receiver Class	2
Transmitter Duty Cycle	<10% on g3 band (default band) <0.1% on g2 band <1% on g1 band
Range	The maximum RF range between An-10 devices is 100m in free air and up to 30m indoors. However the materials used within a building will vary and this will impact upon the RF range. In reality the nature of how the An-10's hybrid-mesh works means that in most scenarios the individual range of an An-10 product will not be important.
Temperature	0ºC to 35ºC
Humidity	5 to 95% non-condensing
Material (casing)	Flame retardant polycarbonate

Dimensions - without brackets



Dimensions - with brackets



Hereby, CP Electronics Ltd, declares that this AT-BB-IN is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. The declaration of conformity may be obtained for CP Electronics Ltd Brent Crescent, London, NW10 7XR, UK.

Part numbers

EBDSPIR-AT-PRM	RF Ceiling PIR presence detector – switched
EBDSPIR-AT-DD	RF Ceiling PIR presence detector – DALI/DSI dimming
EBDSPIR-AT-AD	RF Ceiling PIR presence detector – 1-10V dimming
AT-SL-R	RF relay controller
AT-SL-R-SA	RF relay controller (standalone)
AT-SL-DDR	RF DALI/DSI + relay controller
AT-SL-DDR-SA	RF DALI/DSI + relay controller (standalone)
AT-SL-ADR	RF 1-10V + relay controller
AT-SL-ADR-SA	RF 1-10V + relay controller (standalone)
VITM4-ATMOD	RF Switching module
VITM6-ATMOD-AD	RF VITM6 1-10V module
VITM6-ATMOD-DD	RF VITM6 DALI/DSI module
UNLCDHS	Universal LCD IR handset

If any of these symbols are on the product or battery, the product or battery must be disposed of in the correct manner and must not be treated as household or general waste.

FM 45789

EMS 534520

energy services and technology association

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Due to our policy of continual product improvement CP Electronics reserves the right to alter the specification of this product without prior notice.

Ref: #WD371 Issue 2